

APPENDIX 2: ASSEMBLY CODE

TITLE: ACCEPTING USER CONTROL

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PM_USED EQU 1

INCLUDE "16F819.INC"

; Define statements.

#define adc_bits 8
#define adc_clock 3
#define adc_sampleus 50

RAM_START EQU 00020h
RAM_END EQU 0016Fh
RAM_BANKS EQU 00003h
BANK0_START EQU 00020h
BANK0_END EQU 0007Fh
BANK1_START EQU 000A0h
BANK1_END EQU 000EFh
BANK2_START EQU 00120h
BANK2_END EQU 0016Fh
EEPROM_START EQU 02100h
EEPROM_END EQU 021FFh

R0 EQU RAM_START + 000h
R1 EQU RAM_START + 002h
R2 EQU RAM_START + 004h
R3 EQU RAM_START + 006h
R4 EQU RAM_START + 008h
R5 EQU RAM_START + 00Ah
R6 EQU RAM_START + 00Ch
R7 EQU RAM_START + 00Eh
R8 EQU RAM_START + 010h
T1 EQU RAM_START + 012h
T2 EQU RAM_START + 014h
FLAGS EQU RAM_START + 016h
GOP EQU RAM_START + 017h
RM1 EQU RAM_START + 018h
RM2 EQU RAM_START + 019h
RR1 EQU RAM_START + 01Ah
RR2 EQU RAM_START + 01Bh
_buffer EQU RAM_START + 01Ch
_zone_buff EQU RAM_START + 01Fh
_bufcount EQU RAM_START + 022h
_counterA EQU RAM_START + 024h

```

_counterB          EQU  RAM_START + 026h
_counterC          EQU  RAM_START + 028h
_counterD          EQU  RAM_START + 02Ah
_mode              EQU  RAM_START + 02Ch
_current_zone      EQU  RAM_START + 02Eh
_dir              EQU  RAM_START + 02Fh
_old_PlusMinus     EQU  RAM_START + 030h
PB01              EQU  RAM_START + 031h
PB02              EQU  RAM_START + 032h
PB03              EQU  RAM_START + 033h
_PlusMinus        EQU  RAM_START + 034h
_prev_zone        EQU  RAM_START + 035h
_pulsedata        EQU  RAM_START + 036h
_res_value        EQU  RAM_START + 037h
_ticcount         EQU  RAM_START + 038h
_value            EQU  RAM_START + 039h
_zone             EQU  RAM_START + 03Ah
_PORTL            EQU  PORTB
_PORTH            EQU  PORTA
_TRISL            EQU  TRISB
_TRISH            EQU  TRISA
#define _switch    _PORTA_0
#define _tx        _PORTB_2
#define _tx2       _PORTB_7
#define _pinA      _PORTA_3
#define _pinB      _PORTA_4
#define _pinC      _PORTB_0
#define _pinD      _PORTB_1
#define _tempstateA PB03, 000h
#define _tempstateB PB03, 001h
#define _tempstateC PB03, 002h
#define _tempstateD PB03, 003h
#define _prevstateA PB02, 000h
#define _prevstateB PB02, 001h
#define _prevstateC PB02, 002h
#define _prevstateD PB02, 003h
#define _stateA     PB02, 004h
#define _stateB     PB02, 005h
#define _stateC     PB02, 006h
#define _stateD     PB02, 007h
#define _flagA      PB01, 000h
#define _flagAP      PB01, 001h
#define _flagB      PB01, 002h
#define _flagBP      PB01, 003h
#define _flagC      PB01, 004h
#define _flagCP      PB01, 005h

```

```

#define _flagD      PB01, 006h
#define _flagDP     PB01, 007h
#define _OPTION_REG_7  OPTION_REG, 007h
#define _PORTA_0     PORTA, 000h
#define _PORTB_2     PORTB, 002h
#define _PORTB_7     PORTB, 007h
#define _PORTA_3     PORTA, 003h
#define _PORTA_4     PORTA, 004h
#define _PORTB_0     PORTB, 000h
#define _PORTB_1     PORTB, 001h
#define _pulsedata_0  _pulsedata, 000h
#define _pulsedata_1  _pulsedata, 001h
#define _pulsedata_2  _pulsedata, 002h
#define _pulsedata_3  _pulsedata, 003h
#define _dir_0       _dir, 000h
#define _dir_1       _dir, 001h
#define _dir_2       _dir, 002h

```

; Constants.

```

_limit      EQU 00003h
            INCLUDE "SNAPPE~2.MAC"
            INCLUDE "PBPPIC14.LIB"

            MOVE?CT 000h, _OPTION_REG_7
            MOVE?CB 00Eh, ADCON1
            MOVE?CW 0BCh, _mode
            INPUT?T  _switch
            INPUT?T  _pinA
            INPUT?T  _pinB
            INPUT?T  _pinC
            INPUT?T  _pinD
            MOVE?CB 000h, _ticcount
            MOVE?CB 000h, _dir
            MOVE?CB 000h, _pulsedata
            MOVE?CT 000h, _flagA
            MOVE?CT 000h, _flagAP
            MOVE?CT 000h, _flagB
            MOVE?CT 000h, _flagBP
            MOVE?CT 000h, _flagC
            MOVE?CT 000h, _flagCP
            MOVE?CT 000h, _flagD
            MOVE?CT 000h, _flagDP
            MOVE?TT  _pinA, _stateA
            MOVE?TT  _pinB, _stateB
            MOVE?TT  _pinC, _stateC
            MOVE?TT  _pinD, _stateD

```

```

MOVE?TT  _pinA, _prevstateA
MOVE?TT  _pinB, _prevstateB
MOVE?TT  _pinC, _prevstateC
MOVE?TT  _pinD, _prevstateD
MOVE?TT  _pinA, _tempstateA
MOVE?TT  _pinB, _tempstateB
MOVE?TT  _pinC, _tempstateC
MOVE?TT  _pinD, _tempstateD
MOVE?CW  _limit, _counterA
MOVE?CW  _limit, _counterB
MOVE?CW  _limit, _counterC
MOVE?CW  _limit, _counterD
MOVE?CB  0FFh, _zone_buff
MOVE?CB  0FFh, _zone_buff + 00001h
MOVE?CB  0FFh, _zone_buff + 00002h
MOVE?CB  000h, _zone
MOVE?CB  000h, _prev_zone
MOVE?CB  000h, _current_zone
ADCIN?CB 002h, _value
MOVE?BB  _value, _value
MOVE?BB  _value, _res_value

```

```

LABEL?L  _bufinit
MOVE?CB  0FFh, _buffer
MOVE?CB  0FFh, _buffer + 00001h
MOVE?CB  0FFh, _buffer + 00002h
MOVE?CW  000h, _bufcount

```

```

LABEL?L  _main
GOSUB?L  _Rotory
GOSUB?L  _Direction
GOSUB?L  _BufStuff
GOSUB?L  _Display
GOSUB?L  _resvalue
GOSUB?L  _Look
GOSUB?L  _a2dbuffer
GOSUB?L  _Press_Test
GOSUB?L  _Release_test
GOTO?L   _main

```

```

LABEL?L  _initialize
MOVE?TT  _pinA, _stateA
MOVE?TT  _pinB, _stateB
MOVE?TT  _pinC, _stateC
MOVE?TT  _pinD, _stateD
MOVE?TT  _pinA, _prevstateA

```

```

MOVE?TT    _pinB, _prevstateB
MOVE?TT    _pinC, _prevstateC
MOVE?TT    _pinD, _prevstateD
RETURN?

```

```

LABEL?L    _Rotory
GOSUB?L    _CheckPinA
GOSUB?L    _CheckPinB
GOSUB?L    _CheckPinC
GOSUB?L    _CheckPinD
CMPEQ?TCB  _flagA, 001h, T1
CMPEQ?TCB  _flagB, 001h, T2
LOR?BBW    T1, T2, T2
CMPF?WL    T2, L00001
MOVE?TT    _prevstateA, _pulsedata_0
MOVE?TT    _prevstateB, _pulsedata_1
MOVE?TT    _stateA, _pulsedata_2
MOVE?TT    _stateB, _pulsedata_3
MOVE?CT    000h, _flagA
MOVE?CT    000h, _flagB
MOVE?CW    000h, _bufcount
GOTO?L     L00002
LABEL?L    L00001
CMPEQ?TCB  _flagC, 001h, T1
CMPEQ?TCB  _flagD, 001h, T2
LOR?BBW    T1, T2, T2
CMPF?WL    T2, L00003
MOVE?TT    _prevstateC, _pulsedata_0
MOVE?TT    _prevstateD, _pulsedata_1
MOVE?TT    _stateC, _pulsedata_2
MOVE?TT    _stateD, _pulsedata_3
MOVE?CT    000h, _flagC
MOVE?CT    000h, _flagD
MOVE?CW    000h, _bufcount
LABEL?L    L00003
LABEL?L    L00002

```

```

LABEL?L    _exit_rotory
RETURN?

```

```

LABEL?L    _CheckPinA
CMPNE?WCL  _counterA, _limit, L00005
GOTO?L     _statecheckA
GOTO?L     L00006
LABEL?L    L00005
ADD?WCW    _counterA, 001h, _counterA

```

```

GOTO?L    _countercheckA
LABEL?L    L00006

LABEL?L    _countercheckA
CMPNE?WCL    _counterA, _limit, L00007
CMPEQ?TTL    _tempstateA, _pinA, L00009
GOTO?L    _resetcounterA
GOTO?L    L00010
LABEL?L    L00009
MOVE?TT    _stateA, _prevstateA
MOVE?TT    _tempstateA, _stateA
MOVE?CT    001h, _flagA
MOVE?CT    001h, _flagAP
GOTO?L    _exitA
LABEL?L    L00010
GOTO?L    L00008
LABEL?L    L00007
GOTO?L    _tempstatecheckA
LABEL?L    L00008

LABEL?L    _tempstatecheckA
CMPEQ?TTL    _tempstateA, _pinA, L00011
GOTO?L    _resetcounterA
GOTO?L    L00012
LABEL?L    L00011
GOTO?L    _exitA
LABEL?L    L00012

LABEL?L    _statecheckA
CMPEQ?TTL    _stateA, _pinA, L00013
GOTO?L    _resetcounterA
GOTO?L    L00014
LABEL?L    L00013
GOTO?L    _exitA
LABEL?L    L00014

LABEL?L    _resetcounterA
MOVE?CT    000h, _flagA
MOVE?CW    000h, _counterA
MOVE?TT    _pinA, _tempstateA

LABEL?L    _exitA
RETURN?

LABEL?L    _CheckPinB
CMPNE?WCL    _counterB, _limit, L00015

```

```

GOTO?L      _statecheckB
GOTO?L      L00016
LABEL?L     L00015
ADD?WCW     _counterB, 001h, _counterB
GOTO?L      _countercheckB
LABEL?L     L00016

LABEL?L     _countercheckB
CMPNE?WCL   _counterB, _limit, L00017
CMPEQ?TTL   _tempstateB, _pinB, L00019
GOTO?L      _resetcounterB
GOTO?L      L00020
LABEL?L     L00019
MOVE?TT     _stateB, _prevstateB
MOVE?TT     _tempstateB, _stateB
MOVE?CT     001h, _flagB
MOVE?CT     001h, _flagBP
GOTO?L      _exitB
LABEL?L     L00020
GOTO?L      L00018
LABEL?L     L00017
GOTO?L      _tempstatecheckB
LABEL?L     L00018

LABEL?L     _tempstatecheckB
CMPEQ?TTL   _tempstateB, _pinB, L00021
GOTO?L      _resetcounterB
GOTO?L      L00022
LABEL?L     L00021
GOTO?L      _exitB
LABEL?L     L00022

LABEL?L     _statecheckB
CMPEQ?TTL   _stateB, _pinB, L00023
GOTO?L      _resetcounterB
GOTO?L      L00024
LABEL?L     L00023
GOTO?L      _exitB
LABEL?L     L00024

LABEL?L     _resetcounterB
MOVE?CT     000h, _flagB
MOVE?CW     000h, _counterB
MOVE?TT     _pinB, _tempstateB

LABEL?L     _exitB

```


RETURN?

LABEL?L _CheckPinC
CMPNE?WCL _counterC, _limit, L00025
GOTO?L _statecheckC
GOTO?L L00026
LABEL?L L00025
ADD?WCW _counterC, 001h, _counterC
GOTO?L _countercheckC
LABEL?L L00026

LABEL?L _countercheckC
CMPNE?WCL _counterC, _limit, L00027
CMPEQ?TTL _tempstateC, _pinC, L00029
GOTO?L _resetcounterC
GOTO?L L00030
LABEL?L L00029
MOVE?TT _stateC, _prevstateC
MOVE?TT _tempstateC, _stateC
MOVE?CT 001h, _flagC
MOVE?CT 001h, _flagCP
GOTO?L _exitC
LABEL?L L00030
GOTO?L L00028
LABEL?L L00027
GOTO?L _tempstatecheckC
LABEL?L L00028

LABEL?L _tempstatecheckC
CMPEQ?TTL _tempstateC, _pinC, L00031
GOTO?L _resetcounterC
GOTO?L L00032
LABEL?L L00031
GOTO?L _exitC
LABEL?L L00032

LABEL?L _statecheckC
CMPEQ?TTL _stateC, _pinC, L00033
GOTO?L _resetcounterC
GOTO?L L00034
LABEL?L L00033
GOTO?L _exitC
LABEL?L L00034

LABEL?L _resetcounterC
MOVE?CT 000h, _flagC

MOVE?CW 000h, _counterC
MOVE?TT _pinC, _tempstateC

LABEL?L _exitC
RETURN?

LABEL?L _CheckPinD
CMPNE?WCL _counterD, _limit, L00035
GOTO?L _statecheckD
GOTO?L L00036
LABEL?L L00035
ADD?WCW _counterD, 001h, _counterD
GOTO?L _countercheckD
LABEL?L L00036

LABEL?L _countercheckD
CMPNE?WCL _counterD, _limit, L00037
CMPEQ?TTL _tempstateD, _pinD, L00039
GOTO?L _resetcounterD
GOTO?L L00040
LABEL?L L00039
MOVE?TT _stateD, _prevstateD
MOVE?TT _tempstateD, _stateD
MOVE?CT 001h, _flagD
MOVE?CT 001h, _flagDP
GOTO?L _exitD
LABEL?L L00040
GOTO?L L00038
LABEL?L L00037
GOTO?L _tempstatecheckD
LABEL?L L00038

LABEL?L _tempstatecheckD
CMPEQ?TTL _tempstateD, _pinD, L00041
GOTO?L _resetcounterD
GOTO?L L00042
LABEL?L L00041
GOTO?L _exitD
LABEL?L L00042

LABEL?L _statecheckD
CMPEQ?TTL _stateD, _pinD, L00043
GOTO?L _resetcounterD
GOTO?L L00044
LABEL?L L00043
GOTO?L _exitD

```

LABEL?L    L00044

LABEL?L    _resetcounterD
MOVE?CT    000h, _flagD
MOVE?CW    000h, _counterD
MOVE?TT    _pinD, _tempstateD

LABEL?L    _exitD
RETURN?

LABEL?L    _BufStuff
CMPEQ?BCB _buffer + 00001h, 0FFh, T1
CMPEQ?BCB _buffer + 00002h, 0FFh, T2
LOR?BBW    T1, T2, T2
CMPF?WL    T2, L00045
GOTO?L     _shift
GOTO?L     L00046
LABEL?L    L00045
MOVE?BT    _buffer, _dir_0
MOVE?BT    _buffer + 00001h, _dir_1
MOVE?BT    _buffer + 00002h, _dir_2
LABEL?L    L00046
GOSUB?L    _ClockCounterClock

LABEL?L    _shift
MOVE?BB    _buffer + 00001h, _buffer + 00002h
MOVE?BB    _buffer, _buffer + 00001h
RETURN?

LABEL?L    _Direction
CMPEQ?BCL _pulsedata, 00Fh, L00049
CMPEQ?BCL _pulsedata, 00Ah, L00050
CMPEQ?BCL _pulsedata, 005h, L00051
CMPNE?BCL _pulsedata, 000h, L00052

LABEL?L    L00049

LABEL?L    L00050

LABEL?L    L00051
MOVE?CB    0FFh, _buffer
GOTO?L     L00048
LABEL?L    L00052
CMPEQ?BCL _pulsedata, 00Eh, L00053
CMPEQ?BCL _pulsedata, 008h, L00054
CMPEQ?BCL _pulsedata, 007h, L00055

```

CMPNE?BCL _pulsedata, 001h, L00056

LABEL?L L00053

LABEL?L L00054

LABEL?L L00055

MOVE?CB 001h, _buffer

GOTO?L L00048

LABEL?L L00056

CMPEQ?BCL _pulsedata, 00Dh, L00057

CMPEQ?BCL _pulsedata, 00Bh, L00058

CMPEQ?BCL _pulsedata, 004h, L00059

CMPNE?BCL _pulsedata, 002h, L00060

LABEL?L L00057

LABEL?L L00058

LABEL?L L00059

MOVE?CB 000h, _buffer

GOTO?L L00048

LABEL?L L00060

CMPEQ?BCL _pulsedata, 00Ch, L00061

CMPEQ?BCL _pulsedata, 009h, L00062

CMPEQ?BCL _pulsedata, 006h, L00063

CMPNE?BCL _pulsedata, 003h, L00064

LABEL?L L00061

LABEL?L L00062

LABEL?L L00063

MOVE?CB 0FFh, _buffer

LABEL?L L00064

LABEL?L L00048

RETURN?

LABEL?L _ClockCounterClock

CMPEQ?BCL _dir, 004h, L00067

CMPEQ?BCL _dir, 002h, L00068

CMPEQ?BCL _dir, 001h, L00069

CMPNE?BCL _dir, 000h, L00070

LABEL?L L00067

LABEL?L L00068

 LABEL?L L00069
 MOVE?CB 02Dh, _PlusMinus
 GOTO?L L00066
 LABEL?L L00070
 CMPEQ?BCL _dir, 007h, L00071
 CMPEQ?BCL _dir, 006h, L00072
 CMPEQ?BCL _dir, 005h, L00073
 CMPNE?BCL _dir, 003h, L00074

 LABEL?L L00071

 LABEL?L L00072

 LABEL?L L00073
 MOVE?CB 02Bh, _PlusMinus
 LABEL?L L00074
 LABEL?L L00066
 RETURN?

 LABEL?L _Display
 CMPEQ?TCB _flagAP, 001h, T1
 CMPEQ?TCB _flagBP, 001h, T2
 LAND?BBW T1, T2, T2
 CMPF?WL T2, L00075
 CMPEQ?BBL _old_PlusMinus, _PlusMinus, L00077
 MOVE?BB _PlusMinus, _old_PlusMinus
 LABEL?L L00077
 CMPNE?BCL _PlusMinus, 02Dh, L00079
 SUB?BCB _ticcount, 001h, _ticcount
 CMPEQ?BCB _ticcount, 000h, T1
 CMPEQ?BCB _ticcount, 0FFh, T2
 LOR?BBW T1, T2, T2
 CMPF?WL T2, L00081
 MOVE?CB 01Eh, _ticcount
 LABEL?L L00081
 SEROUT2DPIN?T _tx
 SEROUT2MODE?W _mode
 SEROUT2PACE?C 000h
 SEROUT2?C 024h
 SEROUT2?C 04Ch
 SEROUT2?C 02Bh
 SEROUT2?C 02Ah
 GOTO?L L00080
 LABEL?L L00079

```

ADD?BCB    _ticcount, 001h, _ticcount
CMPNE?BCL _ticcount, 01Fh, L00083
MOVE?CB    001h, _ticcount
LABEL?L    L00083
SEROUT2DPIN?T _tx
SEROUT2MODE?W _mode
SEROUT2PACE?C 000h
SEROUT2?C 024h
SEROUT2?C 04Ch
SEROUT2?C 02Dh
SEROUT2?C 02Ah
LABEL?L    L00080
GOSUB?L    _initialize
MOVE?CT    000h, _flagAP
MOVE?CT    000h, _flagBP
LABEL?L    L00075
CMPEQ?TCB _flagCP, 001h, T1
CMPEQ?TCB _flagDP, 001h, T2
LAND?BBW   T1, T2, T2
CMPF?WL    T2, L00085
CMPEQ?BBL _old_PlusMinus, _PlusMinus, L00087
MOVE?BB    _PlusMinus, _old_PlusMinus
LABEL?L    L00087
CMPNE?BCL _PlusMinus, 02Dh, L00089
SUB?BCB    _ticcount, 001h, _ticcount
CMPEQ?BCB _ticcount, 000h, T1
CMPEQ?BCB _ticcount, 0FFh, T2
LOR?BBW    T1, T2, T2
CMPF?WL    T2, L00091
MOVE?CB    01Eh, _ticcount
LABEL?L    L00091
SEROUT2DPIN?T _tx
SEROUT2MODE?W _mode
SEROUT2PACE?C 000h
SEROUT2?C 024h
SEROUT2?C 052h
SEROUT2?C 02Bh
SEROUT2?C 02Ah
GOTO?L     L00090
LABEL?L    L00089
ADD?BCB    _ticcount, 001h, _ticcount
CMPNE?BCL _ticcount, 01Fh, L00093
MOVE?CB    001h, _ticcount
LABEL?L    L00093
SEROUT2DPIN?T _tx
SEROUT2MODE?W _mode

```

SEROUT2PACE?C 000h
SEROUT2?C 024h
SEROUT2?C 052h
SEROUT2?C 02Dh
SEROUT2?C 02Ah
LABEL?L L00090
GOSUB?L _initialize
MOVE?CT 000h, _flagCP
MOVE?CT 000h, _flagDP
LABEL?L L00085
RETURN?

LABEL?L _resvalue
ADCIN?CB 000h, _value
CMPEQ?BBL _res_value, _value, L00095
PAUSE?C 032h
MOVE?BB _value, _res_value
GOTO?L _resvalue
LABEL?L L00095
MOVE?BB _value, _res_value

LABEL?L _exit_resval
RETURN?

LABEL?L _Look
CMPEQ?BCL _res_value, 06Ah, L00099
CMPEQ?BCL _res_value, 069h, L00100
CMPNE?BCL _res_value, 068h, L00101

LABEL?L L00099

LABEL?L L00100
MOVE?CB 031h, _zone_buff
GOTO?L L00098
LABEL?L L00101
CMPEQ?BCL _res_value, 05Fh, L00102
CMPEQ?BCL _res_value, 05Eh, L00103
CMPEQ?BCL _res_value, 05Dh, L00104
CMPNE?BCL _res_value, 05Ch, L00105

LABEL?L L00102

LABEL?L L00103

LABEL?L L00104
MOVE?CB 036h, _zone_buff

GOTO?L L00098
 LABEL?L L00105
 CMPEQ?BCL _res_value, 0B5h, L00106
 CMPEQ?BCL _res_value, 0B4h, L00107
 CMPEQ?BCL _res_value, 0B3h, L00108
 CMPNE?BCL _res_value, 0B2h, L00109

 LABEL?L L00106

 LABEL?L L00107

 LABEL?L L00108
 MOVE?CB 032h, _zone_buff
 GOTO?L L00098
 LABEL?L L00109
 CMPEQ?BCL _res_value, 079h, L00110
 CMPEQ?BCL _res_value, 078h, L00111
 CMPEQ?BCL _res_value, 077h, L00112
 CMPEQ?BCL _res_value, 076h, L00113
 CMPNE?BCL _res_value, 075h, L00114

 LABEL?L L00110

 LABEL?L L00111

 LABEL?L L00112

 LABEL?L L00113
 MOVE?CB 035h, _zone
 GOTO?L L00098
 LABEL?L L00114
 CMPEQ?BCL _res_value, 065h, L00115
 CMPEQ?BCL _res_value, 064h, L00116
 CMPEQ?BCL _res_value, 063h, L00117
 CMPEQ?BCL _res_value, 062h, L00118
 CMPNE?BCL _res_value, 061h, L00119

 LABEL?L L00115

 LABEL?L L00116

 LABEL?L L00117

 LABEL?L L00118
 MOVE?CB 038h, _zone
 GOTO?L L00098

LABEL?L L00119
CMPEQ?BCL _res_value, 0D6h, L00120
CMPEQ?BCL _res_value, 0D5h, L00121
CMPEQ?BCL _res_value, 0D4h, L00122
CMPEQ?BCL _res_value, 0D3h, L00123
CMPNE?BCL _res_value, 0D2h, L00124

LABEL?L L00120

LABEL?L L00121

LABEL?L L00122

LABEL?L L00123
MOVE?CB 033h, _zone_buff
GOTO?L L00098
LABEL?L L00124
CMPEQ?BCL _res_value, 083h, L00125
CMPEQ?BCL _res_value, 082h, L00126
CMPNE?BCL _res_value, 081h, L00127

LABEL?L L00125

LABEL?L L00126
MOVE?CB 037h, _zone_buff
GOTO?L L00098
LABEL?L L00127
CMPEQ?BCL _res_value, 090h, L00128
CMPEQ?BCL _res_value, 08Fh, L00129
CMPEQ?BCL _res_value, 08Eh, L00130
CMPNE?BCL _res_value, 08Dh, L00131

LABEL?L L00128

LABEL?L L00129

LABEL?L L00130
MOVE?CB 034h, _zone_buff
GOTO?L L00098
LABEL?L L00131
MOVE?CB 000h, _zone_buff
LABEL?L L00098

LABEL?L _exit_lookup
RETURN?

```

LABEL?L    _a2dbuffer
CMPEQ?BCB _zone_buff + 00001h, 0FFh, T1
CMPEQ?BCB _zone_buff + 00002h, 0FFh, T2
LOR?BBW    T1, T2, T2
CMPF?WL    T2, L00132
GOTO?L     _buff_shift
LABEL?L    L00132
CMPNE?BBL _zone_buff, _zone_buff + 00001h, L00134
MOVE?BB    _zone_buff, _zone
GOTO?L     _clear_buff
LABEL?L    L00134
CMPNE?BBL _zone_buff, _zone_buff + 00002h, L00136
MOVE?BB    _zone_buff, _zone
GOTO?L     _clear_buff
LABEL?L    L00136
CMPNE?BBL _zone_buff + 00001h, _zone_buff + 00002h, L00138
MOVE?BB    _zone_buff + 00001h, _zone
GOTO?L     _clear_buff
LABEL?L    L00138

LABEL?L    _clear_buff
MOVE?CB    0FFh, _zone_buff
MOVE?CB    0FFh, _zone_buff + 00001h
MOVE?CB    0FFh, _zone_buff + 00002h
PAUSEUS?C 064h
GOTO?L     _exit_a2dbuffer

LABEL?L    _buff_shift
MOVE?BB    _zone_buff + 00001h, _zone_buff + 00002h
MOVE?BB    _zone_buff, _zone_buff + 00001h

LABEL?L    _exit_a2dbuffer
RETURN?

LABEL?L    _Press_Test
CMPEQ?BBL _zone, _current_zone, L00140
CMPEQ?BCL _zone, 000h, L00142
MOVE?BB    _zone, _current_zone
GOSUB?L    _press
LABEL?L    L00142
LABEL?L    L00140

LABEL?L    _exit_press_test
RETURN?

LABEL?L    _Release_test

```

CMPEQ?BBL _zone, _current_zone, L00144
GOSUB?L _release
MOVE?BB _zone, _current_zone
LABEL?L L00144

LABEL?L _exit_rel_test
RETURN?

LABEL?L _press
SEROUT2DPIN?T _tx
SEROUT2MODE?W _mode
SEROUT2PACE?C 000h
SEROUT2?C 024h
SEROUT2?B _zone
SEROUT2?C 050h
SEROUT2?C 02Ah
SEROUT2DPIN?T _tx2
SEROUT2MODE?W _mode
SEROUT2PACE?C 000h
SEROUT2?C 052h
SEROUT2?C 065h
SEROUT2?C 073h
SEROUT2?C 020h
SEROUT2?C 056h
SEROUT2?C 061h
SEROUT2?C 06Ch
SEROUT2?C 075h
SEROUT2?C 065h
SEROUT2?C 020h
SEROUT2COUNT?C000h
SEROUT2NUM?B _res_value
SEROUT2DEC?
SEROUT2?C 00Dh
SEROUT2?C 00Ah

LABEL?L _exit_press
RETURN?

LABEL?L _release
SEROUT2DPIN?T _tx
SEROUT2MODE?W _mode
SEROUT2PACE?C 000h
SEROUT2?C 024h
SEROUT2?B _current_zone
SEROUT2?C 052h
SEROUT2?C 02Ah

LABEL?L _exit_release
RETURN?

END